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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,374	07/29/2003	Masahiro Ohmori	Q76693	4314

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EXAMINER

KUGEL, TIMOTHY J

ART UNIT PAPER NUMBER

1712

DATE MAILED: 09/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/628,374

Applicant(s)

OHMORI ET AL.

Examiner

Timothy J. Kugel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 31-52 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 31-50 and 52 is/are rejected.
- 7) ☒ Claim(s) 32 and 51 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/700,307.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/29/03 and 9/2/03</u> . | 6) <input checked="" type="checkbox"/> Other: <u>See Continuation Sheet</u> .          |

Continuation of Attachment(s) 6). Other: Machine translation of JP10-137593 cited on IDS.

### **DETAILED ACTION**

1. Claims 31-52 are pending as amended on 29 July 2003, claims 1-30 being cancelled.

#### ***Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file 09/700,307.

#### ***Specification***

3. The disclosure is objected to because of the following informalities: The acronyms CMC (§37), JCPDS (§61) and BET (§82) should be defined at least at their first usage.

Appropriate correction is required.

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

#### ***Claim Objections***

5. Claim 32 is objected to because of the following informalities: the term "Brønsted bass" should be "Brønsted base". Appropriate correction is required.

#### ***Claim Interpretation***

6. Claims 32, 33 and 39 use the phrase "...wherein the content of..." which has been construed as being synonymous with "...wherein the concentration of..."

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7. Claims 34, 35, 40 and 41 use the transitional term 'contains', which has been construed as being synonymous with 'comprising', which is inclusive or open-ended and does not exclude additional, unrecited elements or method steps such as additional components in the dispersion.

### ***Double Patenting***

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 31-49 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of US 6,627,336 (Ohmori '336 hereinafter).

Although the conflicting claims are not identical, they are not patentably distinct from each other because Ohmori '336 claims an article comprising a film formed on a surface—including glass—from an aqueous dispersion of titanium oxide particles—including particles comprising at least 70 weight percent brookite titanium oxide—at an average particle diameter of from 0.01 to 0.1  $\mu\text{m}$ , from 50 to 10,000 ppm total of chloride ion and at least one Brønsted base ion selected from the group consisting of

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pyrophosphate, metaphosphate, polyphosphate, methanesulfonate, ethanesulfonate, dodecylbenzenesulfonate and propanesulfonate, 10 to 10,000 ppm of a water-soluble polymer, and binder—including an alkyl silicate binder.

Since Ohmori '336 claims the same composition as claimed with particles of the same diameter, one of ordinary skill in the art at the time the invention was made would have expected that the photo-catalytic activity and the surface area of the Ohmori '336 composition would inherently be the same as claimed.

10. Claims 31, 44, 47 and 50 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 6, 7, 9 and 11-15 of US 6,337,301 (Ohmori '301 hereinafter) in view of applicant's admission.

Although the conflicting claims are not identical, they are not patentably distinct from each other because Ohmori '301 claims a photo-catalytic composite and film comprising titanium oxide particles having an average particle diameter of from about 0.005 to 0.3  $\mu\text{m}$ , at least one other compound—including zirconium nitrate, wherein the composite includes a base material selected from materials including glass and electric lamps and lighting fixtures.

Ohmori '301 does not explicitly claim a film or composite comprising a chloride ion; however applicant admits that titanium oxide inevitably contains chlorine ions ( $\P$ 05).

11. Claims 31, 32, 47 and 50 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 2, 7 and 16 of US 6,479,141 (Sanbayashi hereinafter) in view of applicant's admission.

Although the conflicting claims are not identical, they are not patentably distinct from each other because Sanbayashi claims a composition comprising titanium oxide particles having an average particle diameter of from about 0.004 to 0.1  $\mu\text{m}$ , at least one other compound—including zirconium nitrate, or a phosphate containing compound.

Sanbayashi does not explicitly claim a film or composite comprising a chloride ion; however applicant admits that titanium oxide inevitably contains chlorine ions ( $\text{TiO}_2$ ).

***Claim Rejections - 35 USC § 102***

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 31, 33, 35, 36, 43, 44, 46, 47, 49, 50 and 52 are rejected under 35 U.S.C. 102(b) as being anticipated by WO97/10185 which was published in English as US 6,037,289 (Chopin hereinafter) from which all references are taken herein.

Chopin teaches a coating with photo-catalytic property comprising a film of titanium dioxide particles—of average diameter between 5 and 70 nm, which converts to 0.005 to 0.07  $\mu\text{m}$  (Column 3 Lines 3-7)—in a zirconium or aluminum oxide binder (Column 3 Lines 10-21) with a alkylsilanes adhesive (Column 3 Line 29 – Column 4 Line 6), on a vehicle or building material substrate—including glass (Column 1 Lines 16-22)—wherein the film of titanium oxide particles was formed from an aqueous dispersion of titanium oxide containing between 1 and 300 g/L titanium dioxide—which

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converts to 0.01 to 3.75 mol/L (Column 11 Lines 3-4)—and contains chlorine and phosphate or sulfate ions (Column 11 Line 15 – Column 12 Line 51).

14. Claims 31, 33, 34, 44 and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0581216 (Okada hereinafter).

Okada teaches titanium oxide particle films for use as photo-catalysts, catalyst carriers and in glasses (Page 2 Lines 13-26) including 0.1 to 40 weight percent—which converts to 1,000 to 40,000 ppm—of a water-soluble polymer such as polyethylene glycol (Page 4 Lines 18-21) wherein the film is formed from aqueous dispersions of titanium oxide particles with average diameters of 3 to 100 nm—which converts to 0.003 to 0.1  $\mu\text{m}$  (Page 3 Lines 1-26)—at concentrations of 0.5 to 50 weight percent—which converts to 0.06 to 6.25 mol/L (Page 3 Lines 32-35)—and contains chloride and metaphosphate ions (Page 3 Lines 36-44 and Page 4 Lines 16-18).

15. Claims 31, 35, 37, 38 and 41 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,589,347 (Arai).

Arai teaches a multilayer analysis element comprising brookite-type titanium dioxide particles of diameter from about 0.1 to 1.2  $\mu\text{m}$  (Column 4 Lines 53-57) from an aqueous liquid comprising phosphate buffers (Column 8 Lines 45-67) and an adhesive layers (Column 4 Lines 16-17).

***Allowable Subject Matter***

16. Claim 52 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.



The prior art does not teach or fairly suggest a catalyst article having photocatalytic activity comprising a titanium oxide thin film comprising an alkyl silicate binder on an alumina or zirconia base wherein the film is formed from an aqueous dispersion of titanium oxide particles comprising a chloride ion and a Brønsted base ion selected from the group consisting of nitrate, phosphate, metaphosphate, polyphosphate or an organic acid.

### ***Conclusion***

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Kugel whose telephone number is (571) 272-1460. The examiner can normally be reached Monday-Thursday.

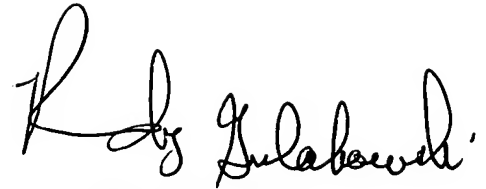
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

18. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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TJK  
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A handwritten signature in black ink, appearing to read "Randy Gulakowski". The signature is fluid and cursive, with a large initial "R" and a distinct "Gulakowski" ending.

RANDY GULAKOWSKI  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700